WHAT IS CLAIMED IS:

1. A method of direct extraction of cellular material from a tissue sample which comprises:

providing a tissue sample;

providing a selectively activated surface which can be activated to provide selectively activated regions thereof with adhesive properties;

providing a convex surface;

identifying at least one portion of the tissue sample which is to be extracted;

juxtaposing at least one portion of the tissue sample with the convex surface;

selectively activating the portion of the selectively activated surface to form an adhesive transfer surface;

contacting the tissue sample with the adhesive transfer surface; and

separating the adhesive transfer surface from the tissue sample while maintaining adhesion with the at least one portion of the tissue sample so that the at least one portion of the tissue sample is extracted from a remaining portion of the tissue sample and attached to the adhesive transfer surface.

2. A method of direct extraction of cellular material from a tissue sample according to claim 1 and wherein the contacting step occurs before the selectively activating step.

3. A method of direct extraction of cellular material from a tissue sample according to claim 1 and wherein the contacting step occurs after the selectively activating step.

4. A method of direct extraction of cellular material from a tissue sample according to claim 1 and wherein the selectively activated surface is attached to the convex surface.

5. A method of direct extraction of cellular material from a tissue sample according to claim 1 and wherein the convex surface is cylindrical.

6. A method of direct extraction of cellular material from a tissue sample according to claim 5, wherein the cylindrical surface makes a line contact with the tissue sample.

7. A method of direct extraction of cellular material from a tissue sample according to claim 1 and wherein the convex surface is conical.

8. A method of direct extraction of cellular material from a tissue sample according to claim 7 and wherein the conical surface is a frustum of a cone.

9. A method of direct extraction of cellular material from a tissue sample according to claim 7 and wherein the convex surface makes a line contact with the tissue sample.

10. A method of direct extraction of cellular material from a tissue sample according to claim 1 and wherein the convex surface is provided with facets.

11. A method of direct extraction of cellular material from a tissue sample according to claim 10 and wherein only one facet at a time comes in contact with the tissue sample.

12. A method of direct extraction of cellular material from a tissue sample according to claim 1 and wherein the convex surface is located at the extremity of a rod.

13. A method of direct extraction of cellular material from a tissue sample according to claim 1 and wherein the convex surface is spherical.

14. A method of direct extraction of cellular material from a tissue sample according to claim 13 and wherein the spherical surface has a circular contact with the tissue sample.

15. A method of direct extraction of cellular material from a tissue sample according to claim 1 and wherein the convex surface is an oblate spheroid.

16. A method of direct extraction of cellular material from a tissue sample according to claim 15 and wherein the oblate spheroid contacts the tissue sample at an elliptical patch.

17. A method of direct extraction of desired cellular material from a tissue sample having diverse cellular material including the steps of:

a. providing a tissue sample having dispersed desired cellular material scattered throughout the tissue sample;

b. providing a selectively activated convex surface which can be activated to provide selective regions thereof with adhesive properties;

c. identifying at least one portion of the tissue sample with desired cellular material which is to be extracted;

d. contacting the at least one portion of the tissue sample with the selectively activated convex surface;

e. selectively activating a region of the selectively activated convex surface which is in contact with the desired cellular material of the tissue sample to form an adhesion region that selectively adheres to the desired cellular material;

f. separating the adhesion region from the tissue sample while maintaining adhesion between the adhesion region and the desired cellular material of the tissue sample so that at least a part of the at least one portion of the

tissue sample is extracted from a remaining portion of the tissue sample;

g. reorienting the convex surface with respect to the tissue sample; and,

h. repeating steps c., d., e., and f. to place desired cellular material on a different region of the selectively activated convex surface.

18. A method of direct extraction of desired cellular material from a tissue sample according to claim 17 and wherein:

step h. includes repeating steps c., d., e., f., and g. so as to pool desired cellular material on different regions of the selectively activated convex surface.

19. A method of direct extraction of desired cellular material from a tissue sample according to claim 17 and wherein:

the step of reorienting the convex surface includes rolling the convex surface over the tissue sample.

20. A method of direct extraction of desired cellular material from a tissue sample according to claim 17 and wherein:

the step of reorienting the convex surface includes lifting the convex surface away from the tissue sample and then reorienting the convex surface.

21. A method of direct extraction of desired cellular material from a tissue sample according to claim 20 and wherein:

the step of reorienting includes rotating the convex surface.

22. A method of direct extraction of desired cellular material from a tissue sample according to claim 20 and wherein:

the repeating step occurs in separated portions of the tissue sample on the same slide.

23. A method of direct extraction of desired cellular material from a tissue sample according to claim 20 and wherein:

the repeating step occurs in separated portions of tissue samples on different slides.

24. A method of direct extraction of desired cellular material from a tissue sample according to claim 20 including the steps of:

inspecting the desired cellular material on the convex surface; and,

detaching and analyzing at least some of the desired cellular material from the convex surface after the viewing step.

25. A method of direct extraction of desired cellular material from a tissue sample according to claim 20 including the steps of:

inspecting the transferred cellular material on the convex surface; and,

encapsulating any undesired cellular material which may have transferred to the convex surface to prevent its subsequent analysis.

26. In a method of direct extraction of desired cellular material from a tissue sample according to claim 20 and wherein:

any undesired cellular material on the convex surface is inactivated by radiation or heat.

27. In a method of direct extraction of desired cellular material from a tissue sample according to claim 18 and wherein:

the desired cells as collected on the convex surface are inspected.

28. In combination with a microscope having a stage for holding a slide with a tissue sample thereon;

a light source and condenser for illuminating the tissue sample; and,

an objective/eyepiece combination for examining viewed portions of the tissue sample;

the improvement to the microscope comprises in combination:

a selectively activated convex surface which can be activated to provide selective regions thereof with adhesive properties;

means for moving the selectively activated convex surface in and out of contact with the viewed portions of the tissue sample;

means for selectively activating portions of the selectively activated convex surface in contact with the tissue sample to form adhesion regions whereby when the activated convex surface is moved out of contact with the tissue sample the adhesion region of the at least part of the viewed portions of the tissue sample adheres to the selectively activated convex surface; and,

means for reorienting the selectively activated convex surface whereby portions of the selectively activated convex surface which have not been selectively activated are exposed for contact with the tissue sample.

29. The combination with a microscope according to claim 28 and wherein:

the means for moving the selectively activated convex surface in and out of contact with the viewed portions of the tissue sample includes means for moving the convex surface away from a view path from the tissue sample to the objective/eye piece combination.

30. The combination with a microscope according to claim 28 wherein:

the convex surface is transparent.

31. The combination with a microscope according to claim 28 wherein:

the selectively activated convex surface is located at an extremity of a rod;

the means for moving the selectively activated convex surface in and out of contact with the viewed portions of the tissue sample includes a pivot attached to the rod remote from the selectively activated convex surface for pivoting the rod into and out of a light path from the tissue sample to the objective/eye piece combination for viewing the tissue sample; and,

the means for reorienting the selective activated convex surface includes means for rotating the rod.

32. The combination with a microscope according to claim 28 wherein:

the means for moving the selectively activated convex surface in and out of contact with the viewed portions of the tissue sample includes means for contacting the viewed portions of the tissue sample with a measured pre-load force.

33. The combination with a microscope according to claim 28 wherein:

the selectively activated convex surface is located at an extremity of a rod; and,

the rod with its selectively activated convex surface is interchangeable with other similar rods with a selectively activated convex surface.

34. An attachment for a microscope having a stage for holding a slide with a tissue sample thereon, a light source and condenser for illuminating the tissue sample, and an objective/eyepiece combination for examining viewed portions of the tissue sample;

the attachment comprising in combination:

a selectively activated convex surface which can be activated to provide selective regions thereof with adhesive properties;

means for moving the selectively activated convex surface in and out of contact with the viewed portions of the tissue sample;

means for selectively activating portions of the selectively activated convex surface in contact with the tissue sample to form an adhesion region whereby when the adhesion region is out of contact with the tissue sample at least a part of the viewed portions of the tissue sample adhere to the selectively activated convex surface; and,

means for reorienting the selectively activated convex surface whereby portions of the selectively activated convex surface which have not been activated are exposed for contact with the tissue sample.

35. In an apparatus for laser capture microdissection, a contact surface comprising:

a convex surface;

a rod with the convex surface mounted to an extremity of the rod; and,

a selectively activated coating placed over the convex surface.

36. The apparatus for laser capture microdissection according to claim 35 wherein:

the convex surface is spherical.

37. The apparatus for laser capture microdissection according to claim 35 wherein:

the convex surface is faceted.

38. The apparatus for laser capture microdissection according to claim 35 wherein:

the convex surface is cylindrical.

39. The apparatus for laser capture microdissection according to claim 35 wherein:

the convex surface has the profile of frustum.

40. The apparatus for laser capture microdissection according to claim 35 wherein:
the rod and convex surface are transparent.

41. In an apparatus for laser capture microdissection, a contact surface and vial comprising:
a convex surface;
a selectively activated coating placed over the convex surface;
a vial having a dimension for permitting the convex surface to be placed into the vial; and,
a fluid in the vial for liberating at least a part of a tissue sample adhered to the selectively activated convex surface.

42. A method of producing a convex surface for laser capture microdissection comprising the steps of:
providing a rod with a convex surface;
coating the rod at the convex surface with an activatable adhesive dissolved in a solvent; and,
dissolving solvent to leave the activatable adhesive solidified on the rod at the convex surface.

43. A method of producing a convex surface for laser capture microdissection according to claim 42 and comprising the further steps of:
coating includes dipping the rod at the convex surface in the activatable adhesive dissolved in a solvent.

44. A method of producing a convex surface for laser capture microdissection according to claim 42 and comprising the further steps of:
coating includes spraying the rod at the convex surface with the activatable adhesive dissolved in a solvent.

45. A method of producing a convex surface for laser capture microdissection according to claim 42 and comprising the further steps of:

coating includes applying a measured amount of activatable adhesive in a solvent to the rod at the convex surface.

46. A method of producing a convex surface for laser capture microdissection according to claim 42 and comprising the further steps of:

coating includes impressing the activatable adhesive in a concave mould to impart the desired convex shape.

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